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PORTNOV, A. A., and PYATNITSKAYA, I. N., Klinika Alkogolizma (Clinical Aspects of Alcoholism), Leningrad, "Meditsina," 1971, 390 pp

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PORTNOV, A. A., and PYATNITSKAYA, I. N., Klinika Alkogolizma (Clinical Aspects of Alcoholism), Leningrad, "Meditsina," 1971, 390 pp

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PORTNOV, A. A., and PYATNITSKAYA, I. N., Klinika Alkogolizma (Clinical Aspects of Alcoholism), Leningrad, "Meditsina," 1971, 390 pp

USSR

UDC: 621.372.061

MIKHAYLOV, M. I., PORTNOV, E. L.

"On Measurements and Analytical Determination of the Earth's Resistivity by the Four-Electrode Method"

Sb. nauchn. tr. TsNII svyazi (Collected Scientific Works of the Central Scientific Research Institute of Communications), 1970, vyp. 1, pp 113-124 (from RZh-Radiotekhnika, No 11, Nov 70, Abstract No 11A89)

Translation: The authors discuss the four-electrode method used in geophysics for measuring the apparent resistivity of the Earth where its structure is nonhomogeneous, and an analytical method for processing the results of measurements to obtain equivalent values of the Earth's resistivity which are necessary in the design of grounding devices and for calculating the effect of strong current lines on communications lines.

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UDC 621.391.8

RAZUMOV, L. D., PORTNOV, E. L.

"Causes of Damage to Underground Mains in the Presence of Dangerous Effects from Electric Power Transmission Lines"

Moscow, Elektrosvyaz', No 5, 1971, pp 45-48

Abstract: A study is made of the causes of damage to an underground main in the presence of dangerous effects from electric power transmission lines. The most dangerous section from the point of view of damage to the communications mains is determined on the basis of the investigation.

Analysis of the damage demonstrated that the most probable cause resulting from the effect of electric power transmission lines is the occurrence of high-voltages in the cable strands as a result of magnetic and galvanic effects in the presence of short circuits in the electric power transmission line. The occurrence of high-voltages is the result of unsatisfactory grounding of the metal sheathings of the cables as a result of which the high protective effect of the aluminum sheathing is not used at all. In order to protect the cable in sections with an increased effect from power transmission lines, line-protection grounds must be installed with low resistance to spreading out in accordance with

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RAZUMOV, L. D., et al., Elektrosvyaz', No 5, 1971, pp 45-48

the calculations of the effect, and these resistances must be kept within the norm. When calculating the dangerous power transmission line voltages it is necessary to consider the galvanic effect and to use only those values of the specific ground resistance which were obtained as a result of direct local measurements. Remote feeding of the amplifiers of a main subject to increased danger from electric power transmission lines must be performed only by the "wire-wire" scheme.

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PORTNOV, F.

"Static Electrical Fields and Man".

Riga, Nauka i Tekhnika, No 10, 1973, pp 7-9

Translation: The introduction of the achievements of science and technology into the economy has unprecedentedly expanded the possibilities of man, and his power over nature. In addition, technical progress has presented people with many new problems. These problems arise because the processes carried out by equipment, new chemical substances and materials utilized in the nattional economy frequently have the potential affect living nature, including the human organism.

In the Soviet Union in recent years greater use has been made of powerful electrical fields in technological processes, electro-ion technology. The physical basis of this new field is the utilization of the interaction of powerful electrical fields and electrical charges carrying materials, as well as the characteristics of the movement of electrified materials in an electrical field. This principle is the basis for modern methods of cleaning gases (electrofiltration), concentrating ores, sorting grain in an electrostatic fields, electropainting (when the paint being sprayed has one electrical charge and the object being sprayed and even the entire unit has the

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PORTNOV, F., Nauka i Tekhnika, No 10, 1973, pp 7-9

opposite charge) and many other operations. This new area of technology considerably increase labor productivity, substantially reduces the prime cost of output and saves materials. As is seen, electrical fields make a valuable contribution, they serve man. However, in modern industry one frequently observes dangerous effects of static electricity, when electrical charges and fields not only hinder the normal course of technological processes but even are a major cause of fires.

The dangerous effects of static electricity are frequently encountered in the polygraphic and textile industries as well as at enterprises manufacturing and processing synthetic fibres, plastics, and resin items. Thus, for example, during the unwinding of reeld at typographic plants, an electrostatic charge appears on the surface of the paper. Because of this charge it sticks together stronger the faster it is unwound. Until quite recently, prior to the introduction of a different type of neutralizer, static electricity in the polygraphic industry was responsible for the rejection of 10-15% of finished output.

The situation is even worse in the textile industry. Here charges cause a mutual repulsion of similarly charged threads. Charged fabric (or thread) attracts dust and fibers and thus becomes contaminated, losing its commerical appearance.

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PORTNOV, F., Nauka i Tekhnika, No 10, 1973, pp 7-9

Static electricity is especially noticeable in the intensification of manufacturing processes making objects from synthetic materials. Where one does not succeed in preventing the accumulation of static charges, they can be the cause of explosions.

In some cases, charges of static electricity can accumulate not only on machines and materials but also on the human body. Such a phenomenon can be observed both in production and in domestic conditions. In removing underwear, a person can acquire a charge up to 10-12 kilovolts in relation to the ground. The same takes place when walking around on polymer covered floors of modern apartments or on synthetic rugs. (This is especially noticeable in atmospheres with sharply reduced humidity).

Thus, the problem of the utilization of electrostatic fields and problems of neutralization of charges which have already accumulated has recently acquired ever greater serious social-hygiene significance and is becoming the object of thorough research not only by engineers and technologists, but even medical workers and biologists.

Medical workers and biologists face the task of explaining the effects of static electrical fields (SEP) and charges on the organism and determining at what voltages there are biological effects. Parallel to this, another problem should also be solved; what is the influence on the organism of insula-

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PORTNOV, F., Nauka i Tekhnika, No 10, 1973, pp 7-9

tions from natural electrical fields observed in all-metal railroad cars, airplanes, motor vehicles, or ferro-cement structures of contemporary buildings. The insulation is as unusual as a strong electrical field. It was created by modern civilization. The research of K. Kristov recently established that the increased fatigue noticed among people sitting in an automobile or bus, train or airplane is caused by their temporary insulation from the natural electrical field. There are grounds to assume that rapid changes in the voltage in the atmosphere's electrical fields which precede changes in the weather cause aggravations in the illnesses of sensitive people.

A section of clinical biophysics was set up at the Central Scientific Research Laboratory at the Riga Medical Institute. It will study the medical biological problems of the influence of static electricity, ionized air and electroaerosols on the human organism.

The combination of these problems is due to the fact that one of the effective means in the struggle against electrostatic charges which have already accumulated is the increased ionization of the air in locations where the charges have accumulated. Therefore, together with the study of the effects of electrostatic fields there is also the task of researching the influence

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PORTNOV, F., Nauka i Tekhnika, No 10, 1973, pp 7-9

that prolonged exposure to an atmosphere with increased aeroionization has on the organism.

The study of the effects of electrically charged biologically active substances suspended in the air is a related task. Carrying out research in this area, scientists at the clinical biophysics department of the Riga Medical Institute made use of a principle used in electro-ion technology (charging the atomized substances in an electrical field). They could obtain a new factor physically influencing the organism, to be used for treatment and prevention purposes.

The Riga biophysicists are carrying out the research of the medical biological problems of electroionic technology in various directions. At plants and factories studies are being made of the sites of electrostatic charge accumulation and their formation conditions, as well as changes in the human organism's reactivity under the influence of static electricity. Animal experiments are being conducted to study the influence of static electrical fields of varying voltage and sign. Under clinical conditions studies are being made of the influence of prolonged exposure in an atmosphere with increased ionization on individuals suffering from hypertension and of the efficacy of using electroaerosols in the initial symptoms of arteriosclerosis.

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PORTNOV, F., Nauka i Tekhnika, No 10, 1973, pp 7-9

The results of the Riga biophysicists' study of the influence static electrical fields have under production conditions deserve attention. These results indicate that individuals working in an area effected by SEP (112 people) are observed to have more frequent changes in the nervous system, reflected in neurodynamic disorders compared to individuals in the control group (72 people). A study of the immunobiological reactivity of the organism among those working for a prolonged period (3-5 years) in an area affected by SEP indicated changes in the processes of antimicrobe defense mechanisms in the organism: there were qualitative jumps in the types of microbes of the skin surface and a reduction in the serum lysozyme level. These data are evidence that it is essential to develop methods and equipment for the prevention of the possible unfavorable effects of static electrical fields on the human organism. Scientists at the department of clinical biophysics at the Riga Medical Institute are doing considerable work in order to make their contribution to the solution of this important problem.

In view of the very extensive application of materials with high insulation properties and the more extensive introduction of electroion technology 6/7

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PORTNOV, F., Nauka i Tekhnika, No 10, 1973, pp 7-9

into various sectors of the national economy, problems of the prevention of the various effects of static electricity have acquired major social-hygienic significance.

The introduction of various types of neutralizers of static electricity (radioisotopic, high-voltage, induction and others), the extensive utilization of antistatic additives in the manufacture of synthetic fibers, the combination of materials with varying electrical polarity (mosaic floors polymer tiles) and other methods of combating the harmful effects of static electricity will, to a considerable degree not only improve the technological process, and increase labor productivity, but will also improve work conditions in many sectors of modern industrial production as well as in domestic life, where there is a large amount of synthetic materials.

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PORTNOV, F., Professor, Chairman of the Division of Clinical Biophysics, Riga Medical Institute Central Scientific Research Laboratory

"How Can Aerosols be Applied?"

Moscow, Meditsinskaya Gazeta, 20 Dec 72, p 3

Translation: Among modern therapeutic methods we can find a few that originated in ancient history and continue to attract the physician's attention. One of these is aerosol therapy -- treatment with atomized medications, which has been applied since the time of Hippocrates and has experienced extensive development in out times.

The 2d All-Union Conference on the Application of Aerosols in the National Economy was held in Odessa. The medical section was one of the most widely represented. It was chaired by Prof. S. Eydel'shteyn, a Soviet scientist well known in the field of therapeutic aerosol application. Scientists and physicians from Moscow, Leningrad, Riga, Alma-Ata, Vladivostok, Donetsk, Baku, and other cities in the country gave close to 50 reports at the conference.

What has caused such interest in the problem? What is the future of aerosol therapy and preventative aerosol treatment?

Interest in this method increased sharply after the discovery of antibiotics. It was established that introducing them as aerosols into

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PORTNOV, F., Meditsinskaya Gazeta, 20 Dec 72, p 3

diseased breathing organs is most effective and simple. Later, experimental data showed that many chemotherapeutic drugs, enzymes, hormones, vitamins, phytoncides, mineral water, and other biologically active compounds could be employed in the form of aerosols.

Medicinal aerosols are used for specific therapy of tuberculosis and catarrhal and purulent diseases of the breathing organs. Recent research indicates the high effectiveness of aerosols in the prevention of some occupational diseases. Aerosol prophylaxis and treatment of influenza and acute respiratory and adenoviral infections is receiving intensive development. Aerosol immunization with live influenza vaccine has significant advantages over other methods.

The extensive introduction of preventive aerosol treatment was promoted by industrial production of aerosol tanks, which act simultaneously as containers for medicines and as atomizers. Portability, working reliability, and special dosing features make these tanks irreplaceable tools for individual aerosol prophylaxis and therapy in stomatology, surgery, gynecology, proctology, and dermatology. Reports by S. Bolotina, Ye. Tsivinskiy, V. Grishchenko, N. Smelova, B. Zadorozhnyy, and others dealt with some of the results and possibilities in the use of aerosols to treat these diseases.

Aerosol immunization is especially promising in the presence of mass

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PORTNOV, F., Meditsinskaya Gazeta, 20 Dec 72, p 3

infections. The trend of this idea in our country is being developed successfully in the research of N. Aleksandrova, N. Geffen, N. Yegorova, I. Terskikh, and others.

The significant successes of electro-aerosol therapy were demonstrated at the conference. In our country this relatively new direction has experienced especially great development owing to the creation of modern electro-aerosol therapeutic apparatus and to the profound theoretical and clinical research being conducted by Tartu University, the Riga and Perm' medical institutes, the all-union scientific research institutes for antibiotics and influenza, and other institutions. Electro-aerosols have significant advantages over common aerosols. The electric charge increases their dispersion by opposing surface tension and preventing coagulation of the particles, while high dispersion in turn increases the area of contact between particles and the mucous membrane of the respiratory tract, improving the physiological activity of the atomized medicines.

Reports at the medical section announced the successful application of electro-aerosols in the presence of acute pneumonia, hypertension, atherosclerosis, and wounds and ulcers that are slow to heal. A series of reports dealt with electro-aerosol therapy for some children's diseases (whooping cough, bronchial asthma, and chronic pneumonia).

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PORTNOV, F., Meditsinskaya Gazeta, 20 Dec 72, p 3

The report "Experience in Employing Electro-Aerosol Inhalation to Prevent and Treat Diseases of the Upper Respiratory Passages of Miners in the Karaganda Coal-Mining Basin" by A. Brofman, N. Manetova, and I. Gordiyevskiy aroused great interest. The authors summarized their observations on 300 miners that experienced electro-aerosol inhalation. They also discussed the results of a study on the incidence of acute catarrh of the upper respiratory passages and angina for 1 year before preventive measures were conducted and for the same period after the course of electro-aerosol treatment. It was established that the number of sick days decreased from 126 to 19 (per 100 workers) and the total payment on medical certificates decreased sevenfold. Thus not only the therapeutic but the economic effectiveness of electro-aerosol prophylaxis among miners was demonstrated as well.

The decisions adopted summarized the results and outlined plans for extensive introduction of serosol therapy into practice.

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Public Health, Hygiene and Sanitation

USSR

UDC 613.647:612.424

MINKH, A. A., NEPOMNYASHCHIY, P. I., and PORTNOV, F. G., (Moscow, Riga), Medical Institute, Institute of Elementary and Clinical Medicine

"Hygienic and Occupational-Pathological Aspects of the Biological Effect of Static Electric Fields in Industry"

Moscow, Gigiyena Truda i Professionallnyye Zabolevaniya, No 6, Jun 71, pp 42-44

Abstract: The general level of disease incidence was found to be higher in persons subjected to the effect of static electric fields; there was a higher incidence of particularly acute respiratory diseases in this group than in the control group. In a wood-processing plant, the disease incidence was found to be more than two times that of the control group; the latter group had not been exposed to electrification of the production process. No harmful substances had been found in the air, meteorological factors had been normal and they had been maintained at a normal level by an air-conditioning system. The noise level was 87 decibels and 90-95 decibels respectively. The various differences systems were attributed to the presence of static electric fields in the factories.

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USSR

UDC 678:539.374

BEYL", A. L., and PORTNOV, G. G., Institute of Mechanics of Polymers of the Academy of Sciences Latvian SSR, Riga

"Possible Creep Mechanism of Multilayer Composite Rings Under Internal Pressure"

Riga, Mekhanika Polimerov, No 5, Sep/Oct 73, pp 884-890

Abstract: The deformability of a ring consisting of helically arranged reinforcing layers and a polymeric bonding agent is analyzed. In measuring the dislocations of the external ring surface under the action of an internal pressure, the creep of the material cannot properly be distinguished from the crawling apart of the ring. At prolonged action of internal pressure, under increased pliability conditions of the matrix, the development of additional deformations caused by the crawling of the coils is possible. The analysis of creep deformation effected by this crawling signifies that the elasticity of the rigid reinforcing layer has little effect on the deformations related to the crawling of the ring. Four figures, 24 formulas, seven bibliographic references.

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USSR

UDC: 678:[621.01+539.4]

TARNOPOL'SKIY, YU. M., PORTNOV, G. G., SPRIDZANS, YU. B., and BUIMANIS, V. N., Institute of Polymer Mechanics, Academy of Sciences of the Latvian SSR, Riga

"The Supporting Power of Rings Formed by the Winding of Composites Reinforced by High-Modular Anisotropic Fibers"

Riga, Mekhanika Polimerov, No 4, Jul-Aug 73, pp 673-683

Abstract: The authors study the particulars of composites which are related to the intrinsic anisotropy of reinforcing fibers. The effect of twisting and reinforcement stretching is studied on the axisymmetry of the field of deformations, and the moduli of elasticity and strength in the direction of the fibers under external and internal pressure loading, while taking into consideration the increased pliability of the material in a transverse direction. In the case of modular material, the authors obtain numerical estimates for the moduli of elasticity E_θ and E_r, for the coefficients of thermal expansion α_θ and α_r, and for the initial temperature stresses σ_r^0 and σ_θ^0. The dependence of the destructive pressure on ring thickness is described and the conditions for failure are formulated. In all the studied problems it is shown that it is necessary to take into consideration the increased pliability of the composites in the transverse direction.

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USSR

UDC 669.822:621.039.5

GOLOVCHENKO, YU. M., VOROB'YEV, M. A., BYCHKOV, B. A., DAVIDENKO, A. S., PORT-NOV, V. F.

"Mechanical Properties of Uranium Irradiated to 0.45 Atomic % Burn-up"

Radiatsion. fiz. tverd. tela i reaktornove materialoved. -- V sb (Radiation Solid State Physics and Reactor Material Science -- collection of works), Moscow, Atomizdat Press, 1970, pp 185-191 (from RZh-Metallurgiya, No 4, Apr 71, Abstract No 4I825)

Translation: Uranium samples containing < 0.3 weight % of admixtures (Fe, Si, Al, and C) were irradiated to 0.45 atomic % burn-up with a maximum temperature of 500°. Mechanical tensile, compressive, bending, and fatigue testing was carried out at temperatures up to 500°. The properties of the irradiated uranium depend essentially on the type ("rigidity") of the tests. This is not only connected with the difference in the stress state but also the characteristic features of accumulation of the defects. For uranium irradiated at higher temperatures, σ_T is lower. This is explained by annealing the defects of the first and second type. However, even at an irradiation temperature of 350 and 450°, σ_T is higher than for the unirradiated samples since

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GOLOVCHENKO, YU. M., et al., Radiatsion. fiz. tverd. tela i reaktornoye materialoved., Moscow, Atomizdat Press, 1970, pp 185-191

defects of the third type are not annealed. At a test temperature of 20°, σ_B is lowered with an increase in burn-up. This lowering is sharper for an irradiation temperature up to 360°. There are 3 illustrations and a 5-entry bibliography.

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JPRS 57787
Transl in Metallurgy
18 Dec 72

EFFECT OF COMPOSITION AND STRUCTURE ON MECHANICAL PROPERTIES OF SUPERPLASTIC ALLOYS OF THE Al-Zn SYSTEM

[Article by I. I. Novikov, V. K. Portnov, Yu. P. Kosikhin, N. A. Sinitsina, Department of G. S. Plekhanova, Moscow Institute of Steel and Alloys; Physical Metallurgy of Nonferrous, Rare and Radioactive Metals; Ordzhonikidze, Izvestiya VUZ, Tsvetnaya Metallurgiya, Russian, No 4, 1972, signed to press 15 February 1972, pp 128-132]

The results of tests conducted on rolled sheets of binary The interface alloys of aluminum and zinc are presented. is one of the most important structural properties of two- phase superplastic alloys. Sheets of superplastic alloys, properly processed, are competitive in terms of mechanical properties with standard alloys for deep stamping.

The property of superplasticity of alloys of the Al-Zn system, discovered in 1945 by A. A. Bochvar and Z. A. Sviderskaya [1], has been discussed and investigated in recent years in connection with the possibility of adopting a new technology for the manufacture of superplastic sheet material by low-pressure or negative-pressure pneumatic forming, similar to the forming of plastics [2, 3]. The intelligent choice of zinc-aluminum alloys suitable for pneumatic forming requires a knowledge of the effect of composition and structure on mechanical properties at room temperature and at the product-forming temperature. The overwhelming majority of articles per.ain to analysis of the monotectoid alloy Al + 78% Zn. However, the effect of composition and structure in the binary system Al-Zn on the mechanical properties of alloys has not been analyzed sufficiently. It has been established [4] that the alloy with 80% Zn has maximum relative elongation (650%) at 250°. The initial specimens [4] were in the cast state. Rolled sheets, however, are not used for pneumatic forming.

Presented below are the results of tests conducted on rolled sheets of binary alloys of aluminum with 72-84% by weight Zn. Used for melting the alloys were 99.995% pure aluminum and 99.9975% pure zinc. Sheets 1 mm thick were made by hot rolling the ingots at 340-360° with a 50% summary reduction. The flat specimens for tensile strength tests at room

PORTNOV, V. K.

UDC: 517.514

USSR

PORTNOV, V. R.

"Certain Integral Inequalities"

Teoremy Vlozheniya i Ikh Prilozheniya [Imbedding Theorems and Their Applications -- Collection of Works], Moscow, Nauka Press, 1970, pp 195-203, (Translated from Referativnyy Zhurnal Matematika, No. 8, 1970, Abstract #8B84, by the author).

Translation: Integral inequalities providing an evaluation of the norm of a function through the halfnorm constructed from a certain set of partial derivatives and the norm of the boundary values are studied. These inequalities are used for proof of the existence of a generalized solution of the first boundary value problem for certain quasilinear equations which degenerate at the boundary of the area. A study is made of the case in which the composition of the boundary includes manifolds of small dimensionality and an area which is, generally speaking, unlimited.

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USSR

UDC 547.754.07:543.422.25.4.6

GOLUBEVA, G. A., PORTNOV, Yu. N., and KOST, A. N., Moscow State University imeni M. V. Lomonosov, Moscow

"The Chemistry of Indole. XXXV. The Synthesis of 2-Amino-3-alkylindoles."

Riga, Khimiya Geterotsiklicheskikh Soyedineniy, No 4, Apr 73, pp 511-515

Abstract: Under the action of $POCl_3$, 1-aryl-2-acylhydrazines in an ether solution underwent an intramolecular rearrangement with the formation of 2-amino-3-alkylindoles, which were isolated in the form of their hydrochlorides. The reaction was found to have general applicability and made it possible to synthesize with good yields 2-aminoindoles with substituents in the amino group as well as in various positions of the indole ring. Hydrochlorides of 2-aminoindoles with $R^1=R^3=Me$; R = Br, $R^1=R^3$ = Me; $R^1=R^2$ = Me; R^1 = Me, R^3 = Et; R^1 = Me, R^3 = Ph; R^1 = Ph, R^3 = Me; R^1 = CH_2Ph, R^3 = Me; R^1 = CH_2Ph, R^3 = Et; R^2 = Me, R^3 = Ph; R^3 = Ph were obtained, where R, R^1, R^2, and R^3 is the substituent in the 5-position, 1-position, 2-amino group, and 3-position, respectively. In alkaline solutions the 3-amino-3-alkylindoles underwent spontaneous oxidation to 3-hydroxy-2-aminoindolenines or 3-hydroxy-2-iminoindolines. The constitution of the compounds synthesized was confirmed by UV, IR, and paramagnetic resonance spectroscopy and also by mass spectrometry.

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UDC 547.754.859

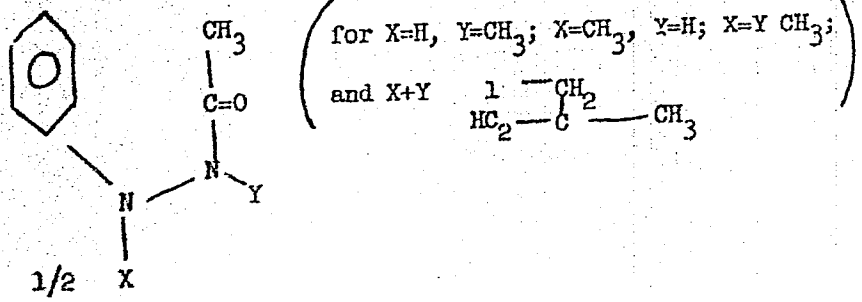
USSR

PORTNOV, YU. N., GOLUBEVA, G. A., KOST, A. N., and VOLKOV, V. S., Moscow State University imeni M. V. Lomonosova

"Indole Chemistry, Part 36. The Rearrangement of 1-Phenyl-2-acetylhydrazines and 1-Phenyl-2-acetylpyrazolidines"

Riga, Khimiya Geterotsiklicheskikh Soyedineniy, 5, May 1973, pp 647-652

Abstract: The rearrangement of the arylhydrazides of acetic acid is more complicated than that of the analogous 1-aryl-2-acylhydrazines to 2-amino indole. Temperature, concentration, solvents among other factors influence the yields and products. Starting materials of the form



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PORTNOV, YU. N., et al., Khimiya Geterotsiklicheskikh Soyedineniy, 5, May 1973, pp 647-652

reacted with $POCl_3$ by ring closure to form a variety of indoles. The CH_3 group influenced the location of the double bond. The β-phenylhydrazindes of acetic acid, having an alkyl group on one of the nitrogen atoms reacting with $POCl_3$ formed the 2-aminoindole with no substitution at position 3. The analogous 1-phenyl-2-acetylpyrazolidines formed the 1,2,3,4-tetrahydropyrimido 1,2-a indoles. Structures were confirmed by IR and NMR data. Preparative procedures are given.

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1/2 024 UNCLASSIFIED PROCESSING DATE--27NOV70

TITLE--INDOLE CHEMISTRY. XIV. FORMATION OF 1,3,AMINOPROPYL,INDOLES FROM 1,ARYLPYRAZOLIDINES -U-

AUTHOR-(02)-PORTNOV, YU.N., KOST, A.N.

COUNTRY OF INFO--USSR

SOURCE--KHIM. GETEROTSIKL. SOEDIN. 1970, (3), 371-6

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--INDOLE, PYRAZOLE, AMINE, NMR SPECTRUM, IR SPECTRUM, UV SPECTRUM, CHEMICAL SYNTHESIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

STEP NO--UR/0409/70/000/003/0371/0376

PROXY REEL/FRAME--3001/0717

CIRC ACCESSION NO--AP0126429

UNCLASSIFIED

2/2 024 UNCLASSIFIED PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0126429

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. Y EQUALS 3,AMINOPROPYL, 3,AMINOBUTYL, OR 3,AMINOBUTYL, OR 3,AMINO,2,METHYLPROPYL THROUGH OUT THIS ABSTR. A MIXT. OF 1.15 G MEO SUB2 CC:CCO SUB2 ME (I) AND 1.2 G 1,PHENYLPYRAZOLIDINE IN ETHER SOLN. WAS KEPT 4-5 HR AT ROOM TEMP. TO YIELD 30PERCENT II, M. 73-4DEGREES (HEXANE). A SOLN. OF 0.22 G II IN 15 ML DRY MEOH WAS SATD. WITH DRY HCL AT 0DEGREES AND THE WHOLE KEPT 24 HR AT 0DEGREES TO YIELD 80PERCENT III (R EQUALS H, R PRIME1 EQUALS CO SUB2 ME, X EQUALS CL, N EQUALS 3), M. 221DEGREES (ANHYD. MEOH). SIMILARLY, 1,ARYLPYRAZOLIDINES AND I GAVE 7 OTHER III (R PRIME1 EQUALS CO SUB2 ME). TO A MIXT. OF A 1,ARYLPYRAZOLIDINE AND A KETONE (0.004 MOLE EACH) WAS ADDED 30 ML ANHYD. C SUB6 H SUB6 AND A SMALL AMT. ANHYD. NA SUB2 SO SUB4, THE MIXT. KEPT 5-6 HR, FILTERED, 5 ML ACOH ADDED, AND THE WHOLE REFLUEXED 3 HR TO YIELD IV (5 PREPD.) OR V (3 PREPD.). SATN. WITH DRY HCL OF A SOLN. AN OF ENEHYDRAZINE OF A KETO ESTER IN ANHYD. ETOH GAVE III (R PRIME1 EQUALS ME) (3 PREPD.), NMR, UV AND IR SPECTRA ARE DISCUSSED. FACILITY: MOSK. GOS. UNIV. IM. LOMONOSOVA, MOSCOW, USSR.

UNCLASSIFIED

UNCLASSIFIED PROCESSING DATE--20NOV70

1/2 017

TITLE--OPTIMIZATION OF THE DEHYDRATION OF PYROMELLITIC ACID TO ITS ANHYDRIDE -U-

AUTHOR-(04)-NAZITOV, M.F., GOLECHEK, A.A., PORTNOV, YU.T., KHANNANOV, T.M.

COUNTRY OF INFO--USSR

SOURCE--ZAVOD. LAB. 1970, 36(5), 580-2

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--DEHYDRATION, PYROMELLITIC ACID, ANHYDRIDE, THERMAL EFFECT, PRESSURE, CHEMICAL PURITY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

STEP NO--UR/0032/70/036/005/0580/0582

PROXY REEL/FRAME--3004/1971

CIRC ACCESSION NO--AP0132232

UNCLASSIFIED

2/2 017 UNCLASSIFIED PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0132232

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A STATISTICALLY PLANNED SET OF 20 EXPTS. WAS CARRIED OUT WITH TEMP. (200 PLUS OR MINUS 30DEGREES), PRESSURE (510 PLUS OR MINUS 150 MM), AND TIME (4 PLUS OR MINUS 1.5 HR) AS INDEPENDENT VARIABLES, AND YIELD AND PURITY OF PYROMELLITIC DIANHYDRIDE AS THE RESPONSES. TWO REGRESSION SERIES WERE OBTAINED.

FACILITY: NAUCH.-ISSLED. INST. NEFTEKHIM. PROIZVOD., MOSCOW, USSR.

UNCLASSIFIED

1/2 019 UNCLASSIFIED PROCESSING DATE--23OCT7(

TITLE--SURGICAL TREATMENT IN VESICO URETERAL REFLEX IN CHILDREN WITH DOUBLE KIDNEY AND URETER -U-

AUTHOR--PORTNOV, Z.M.

COUNTRY OF INFO--USSR

SOURCE--UROLOGIYA I NEFROLOGIYA, 1970, NR 3, PP 17-19

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--PEDIATRICS, KIDNEY, SURGERY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1997/2055 STEP NO--UR/0606/70/000/003/0017/0019

CIRC ACCESSION NO--AP0120698

UNCLASSIFIED

UNCLASSIFIED PROCESSING DATE--23OCT7

2/2 019

CIRC ACCESSION NO--AP0120698

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. OF 65 CHILDREN WITH VESICOURETERA REFLUX A DEVELOPMENTAL ANOMALY, DOUBLE KIDNEY AND URETER WAS ESTABLISHE IN 11. THE REFLUX OCCURRED INTO THE LOWER KIDNEY WITH A GREATER WORKIN CAPACITY. URETERECTOMY, URETERO UREFEROSTOMY WITH IMMERSION OF THE STUMP OF THE REMOVED URETER INTO THE SUBUROTHELIAL CANAL OF THE WALL OF THE URINARY BLADDER WAS THE OPERATION CARRIED OUT IN 4 CASES. THE PRINCIPLE OF THIS OPERATION CONSISTS OF CONVERSION OF SICK DOUBLE KIDNE INTO A SINGLE, HEALTHY ONE. FACILITY: KLINIKA KHIRURGII DETSKOGO VOZRASTA KISHINEVSKOGO MED. INST.

UNCLASSIFIED

USSR

UDC 542.91+661.718.1

BARABASH, N. D., DZHUNDUBAYEV, K. D., PORTNOVA, G. V., and KOZHAKHMETOVA, R. I., Institute of Organic Chemistry, Academy of Sciences Kirgiz SSR

"Synthesis of New Ammonium Salts of Derivatives of Phosphonic Acids"

Frunze, Izvestiya Akademii Nauk Kirgizskoy SSR, No 2, Mar-Apr 72, pp 61-62

Abstract: On reacting the aminophosphonate $(EtO)_2P(=O)-\underset{Me}{CH}-NEt_2$ (I) with alkyl halides RX in a sealed tube for 3-5 hrs at 110-15°, 0,0-diethylphosphonoethyl (N,N,N-diethylalkyl)ammonium halides $/(EtO)_2P(=O)-\underset{Me}{\overset{+}{C}H}-\overset{R}{\overset{+}{N}}Et_2/\overset{-}{X}$ (II) with R=Et, X=Br (d^{20} 1.1700, n^{20}_D 1.4660); R=Pr, X=Br (d^{20} 1.1654, n^{20}_D 1.4800); R=Pr, X=I (d^{20} 1.2460, n^{20}_D 1.4804); and R=Am, X=Br (d^{20} 1.0986, n^{20}_D 1.4565) were obtained in the form of thick oils that crystallized on standing. I was prepared by the methods described by E. K. Filds (Fields?/, J. Am. Chem. Soc., 74, 1528, 1952, and G. M. Kozolapoff, J. An. Chem. Soc., 70, 1971, 1948. The newly synthesized compounds II are of interest because many phosphonylammonium halides exhibit physiological activity to a greater

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USSR

BARABASH, N. D., et al., Izvestiya Akademii Nauk Kirgizskoy SSR, No 2, Mar-Apr 72, pp 61-62

or lesser extent (cf. N. N. Mel'nikov, "Khimiya Pretitsidov" - Chemistry of Pesticides -, Khimiya, Moscow, 1968, and USSR Author's Cert. 179315, Byull. Izobret. , No 5, 1966). The work described is a continuation of research in an earlier stage of which (Barabash et al., Izv. AN Kirgiz. SSR, No 1, 1972) some phosphorylammonium halide analogs were synthesized.

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UDC 542.91+661.718.1

USSR

BARABASH, N. D., DZHUNDUBAYEV, K. D., KOZHAKHMETOVA, R. I., and PORTNOVA, G. V.,
Institute of Organic Chemistry, Academy of Sciences Kirgiz SSR

"Synthesis of O,O-Diethylethylphosphonyl/N,N,N-diethylaryl(alkyl)/ammonium Halides"

Frunze, Izvestiya Akademii Nauk Kirgizskoy SSR, No 1, Jan-Feb 72, p 60

Abstract: O,O-Diethylethylphosphonyl/N,N,N-diethylaryl(alkyl)/ammonium halides (II) were prepared by the reaction $(RO)_2P(=O)\underset{R'}{C}HNR_2$ (I) + R''X → /$(RO)_2$ $P(=O)\underset{R'}{C}HN\begin{matrix}R_2\\ \diagup\\ \diagdown\\ R''\end{matrix}$ /X (II), where R = Et, R' = Me, R'' is CH_2 Ph or Bu, and X = Cl, Br, I. Compounds I were synthesized by known methods. Substances II may be of value as antihelmintics, because salts of quaternary ammonium bases exhibit a wide range of activity of this type. Introduction of a phosphoric acid ester residue will presumably increase the physiological activity of compounds of this class.

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PORTNOVA, O. V.

TECHNICAL TRANSLATION

FSTC-HT-23-910-72

ENGLISH TITLE: Nonlinear Deformation of Aerial Film

FOREIGN TITLE: O nelinejnom uchete deformatsii aeroplenki

AUTHOR: O. V. Portnova

SOURCE: Geodeziya i kartografiya, No. 6, 1971, pp. 64-68

Translated for FSTC by Eileen Weppner, Leo Kanner Associates

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1/2 028 UNCLASSIFIED PROCESSING DATE--20NOV70
TITLE--CIS-TRANS ISOMERISM OF THE PEPTIDE BONDS IN N-METHYLATED ALANINE DIPEPTIDES -U-
AUTHOR-(05)-PORTNOVA, S.L., BYSTROV, V.F., BALASHOVA, T.A., IVANOV, V.T., OVCHINNIKOV, YU.A.
COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, SER. KHIM. 1970, (4), 825-30.

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY, BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--ISOMERIZATION, PEPTIDE, CHEMICAL BONDING, NUCLEAR MAGNETIC RESONANCE, ACTIVATION ENERGY, STEREOCHEMISTRY, ENTROPY, ENTHALPY, ALANINE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3006/1358 STEP NO--UR/0062/70/000/004/0825/0830

CIRC ACCESSION NO--AP0135032
UNCLASSIFIED

2/2 028 UNCLASSIFIED PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0135032

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CIS-TRANS ISOMERISM OF THE N METHYLAMIDE LINK IN DIPEPTIDES OF N METHYLALANINE WAS STUDIED BY NMR SPECTRA AT 21-60DEGREES; SOME 20PERCENT OF SUCH PEPTIDES MAINTAIN THE CIS CONFIGURATION. FOR THE ME ESTER OF N ACETYL,D,ALANYL,L,METHYLALANINE, DELTAH OF CIS TRANS TRANSITION WAS 650 CAL-MOLE, DELTAS SUB35 MINUS 0.21 E.U. AND DELTAF SUB35 710 CAL-MOLE. THE TRANS ISOMER POSSESSES THE LOWER VALUES OF FREE ENERGY, ENTHALPY AND ENTROPY OF THE EQUIL. STATE. THE ESTD. ACTIVATION ENERGY OF INTERNAL ROTATION WAS 19.8 KCAL-MOLE FOR THE TRANS AND 18.5 FOR THE CIS FORM. THESE ARE COMPARABLE TO ROTATIONAL BARRIERS IN ET SUB2 NCHO OR ET SUB2 NAC. FACILITY: INST. KHIM. PRIR. SOEDIN., MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC 51

SOLOMAKHIN, I. S., PORTNOVA, YE. G.

"Mathematical Programming in Technical-Economic Problems of Ferrous Metallurgy"

Matematicheskoye programmirovaniye v tekhniko-ekonomicheskikh zadachakh chernoy metallurgii (Mathematical Programming in Technical-Economic Problems of Ferrous Metallurgy), Moscow, Metallurgiya Press, 1972, 168 pp, ill., 44 k (from RZh-Kibernetika, No 9, Sep 72, Abstract No 9V539K)

Translation: The book contains the following divisions: Part 1. Methods and Problems of Optimal Planning in Ferrous Metallurgy. Chapter I. Linear Programming. Chapter II. Application of the Methods of Linear Programming to Production Planning Problems in Ferrous Metallurgy. Chapter III. Dynamic Programming. Chapter IV. Application of the Methods of Dynamic Programming to Production Planning Problems in Ferrous Metallurgy. Part 2. PERT Planning and Control. Chapter V. Basic Concepts and Calculating the PERT Chart Parameters. Chapter VI. Optimization of the PERT Chart and Practical Application of the PERT System for Production Organization in Ferrous Metallurgy.

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USSR UDC 621.762.1.01:669. 18.95

PORTNOY, K. I., GOROBETS, B. R., ROMANOVICH, I. V., and BABICH, B. N., All-Union Scientific Research Institute of Aviation Materials

"Relation of Precipitation-Hardened Nickel Heat Resistance to Structure Parameters"

Kiev, Poroshkovaya Metallurgiya, No 1, Jan 74, pp 96-100

Abstract: In conjunction with the fact that precipitation-hardened nickel alloys VDU-1 and VDU-2 have a different level of heat resistance despite identical conditions of heat treating, a study was conducted on the structure of these alloys subjected to the same treatment, which differed in dispersity of the hardening phase in the amount of 2.5 vol %. Experiments confirmed a linear relationship of long-time strength to inverse magnitude of mean interparticle distance. It was also determined that there is a linear relationship between long-time strength to relative volume percentage of "coarse" dispersed particles. These results confirmed the hypothesis that the rise in strength increases with temperature due to the unchanged shear modulus with increased temperature and that the number of active slip systems is decreased with increased temperature, which in turn is the result

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USSR

PORTNOY, K. I., et al., Poroshkovaya Metallurgiya, No 1, Jan 74, pp 96-100

of the role of he dispersed hardening particles which hinder the movement of mobile dislocations. Four figures, one table, nine bibliographic references.

2/2

USSR UDC: 669.71

PORTNOY, K. I., BABICH, B. N., ROMANOVICH, I. V., ROMASHOV, V. M., Moscow

"The Growth of Particles of Hardening Phases in Processes Producing Dispersion Hardened Alloys"

Moscow, Fizika i Khimiya Obrabotki Materialov [The Physics and Chemistry of Materials Processing], No 6, Nov-Dec 73, pp 99-103.

Abstract: X-ray and electron microscope methods are used to determine the mean diameter of particles of the hardening phase in an alloy of nickel with three vol. % hafnium dioxide during stages of its production from an initial powder mixture of oxides to a compact deformed bar. The greatest growth of the mean particle diameter of the hardening phase is observed during the operations of sintering and hot extrusion. The main reason for enlargement of particles in processes involved in producing the dispersion hardened alloy is the unevenness of the distribution, allowing direct contact between particles. The electron microscope method is recommended for determination of the mean diameters of hardening-phase particles in a dispersion hardened alloy, since it gives more reliable information than the x-ray method.

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USSR

UDC: 621.652:669.018.95(088.8)

(51)

ARABEY, B. G., BAULIN, Yu. N., ZVEREV, I. I., ZUKHER, M. S., KOKONIN, S. S., MARKOV, Yu. M., PORTNOY, K. I., SKLYAROV, N. M., TYURIN, V. A.

"Metal Ceramic Friction Material"

USSR Author's Certificate Number 346373, Filed 15/12/69, Published 18/08/72 (Translated from Referativnyy Zhurnal Metallurgiya, No 8, 1973, Abstract No 8G422P, by S. Krivonosova).

Translation: A metal ceramic friction material, for example for braking devices, is suggested, containing ZrC and B carbide. In order to increase the stability of the coefficient of friction, B nitride and metals of the Fe group are introduced to the composition, taken in any combination with the following ratio of components (in wt. %): B carbide -- 10-50, Fe-group metals, taken in any combination, 3-35, B nitride 1-5, ZrC -- remainder. The material suggested has the following properties: s. g. 5.52 g/cm^3; coefficient of friction at braking temperature 600° 0.50-0.55, at 800° 0.45-0.50; stability of coefficient of friction with specific braking energies 450 kgm/cm^2 0.75-0.88; at 923 kgm/cm^2 0.80-0.95; wear with specific braking energies of 450 and 923 kgm/cm^2, in μ/tori 2-6 and 6-11 respectively; permissible volumetric

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002202520007-1"

USSR

Arabey, B. G., Baulin, Yu. N., Zverev, I. I., Zukher, M. S., Kokonin, S. S., Markov, Yu. M., Portnoy, K. I., Sklyarov, N. M., Tyurin, V. A., USSR Author's Certificate Number 346373, Filed 15/12/69, Published 18/08/72.

temperature 800°, heat conductivity factor in t/m.° at 100° 48.1, 200° 44.0, 400° 35.9, 600° 29.5, 800° 27.3, 1000° 26.4; specific heat capacity (in cal/g.°) at 100° 0.134, 200° 0.136, 400° 0.150, 600° 0.161, 800° 0.169, 1000° 0.184; tensile strength at 20° 36 kg/mm^2; bending strength at 20° 62 kg/mm^2; shear strength at 20° 13.8 kg/mm^2; a_H 0.15 kgm/cm^2.

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USSR

UDC 548.52

PORTNOY, K. I., GRIBKOV, V. N., SHCHETANOV, B. V., UMANTSEV, E. L., SILAYEV, V. A.

"On the Mechanism of Growth and Etching of Aluminum Nitride Whiskers"

Moscow, Kristallografiya, Vol 18, No 3, May/Jun 73, pp 599-604

Abstract: An investigation is made of the influence of iron impurities on the growth of aluminum nitride whiskers in the process of carbon reduction of aluminum oxide in a nitrogen atmosphere in accordance with the reaction $Al_2O_3 + 3C + N_2 = 2AlN + 3CO$. It is established that the presence of iron is a decisive factor in growth of the crystals. While it does not participate in the process of aluminum oxide reduction, the iron promotes whisker growth by the vapor - liquid - solid phase mechanism, acting as an aluminum and nitrogen solvent. It is shown that with insufficient aluminum in the gaseous phase, the reverse process of nitride whisker evaporation may take place by the solid phase - liquid - vapor mechanism with the iron acting as a solvent.

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USSR

UDC 669.24:539.37

BABICH, B. N., BERNSHTEYN, M. L., PORTNOY, K. I., PROKOSHKINA, V. G., and FEL'GINA, S. B., Moscow

"Effect of Cold Rolling and Subsequent Heating on the Structure and Properties of Dispersion-Hardened Nickel"

Moscow, Akademiya Nauk SSSR. Izvestiya. Metally, No 6, Nov-Dec 72, pp 144-148

Abstract: A study is made of the effect of cold rolling with a 60% reduction in area and subsequent heating on the structure, texture, and hardness of dispersion-hardened nickel containing 3 vol. % HfO_2 and obtained under different conditions of hot extrusion. The cold plastic deformation by means of rolling intensifies during reheating recrystallization of dispersion-hardened nickel as opposed to rotation forging. The obtained recrystallized structure with large elongated grains (2-3 mm) is characterized by the presence of annealing twins, developed substructure, and texture that retains mainly the orientations of the structure of deformation. In order to obtain a maximum degree of hardening of dispersion-hardened alloy, it is feasible to utilize a combined deformation during thermomechanical treatment which provides for combining of deformation rolling and rotation forging.

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USSR

UDC 620.18:669.71

PORTNOY, K. I., LEVINSKIY, YU. V., SALIBEKOV, S. YE., DVOYCHENKOVA, L. V., and TREFILOV, B. F., Moscow

"Using the Titanium Nitride as a Diffusion Barrier in Nickel-Base Composite Materials"

Moscow, Fizika i Khimiya Obrabotki Materialov, No 3, May/Jun 73, pp 122-126

Abstract: The aim of this work was to design a commercial unit for the continuous coating of tungsten and molybdenum wire with titanium nitride and to study the behavior of these wires in a nickel matrix. The unit employs a mixture of hydrogen and nitrogen which passes into the reaction vessel and is mixed with titanium chloride. Tungsten (molybdenum) wire is drawn through the reaction vessel while heated by an electric current passing through it. The titanium tetrachloride undergoes reduction on a heated wire surface, with a simultaneous formation of titanium nitride. The optimal coating temperature was 1100°C, with a deposition rate of 0.5 μ/sec. This method makes it possible to produce coatings 3-6 μ thick on wires 300 and 310 μ thick. Titanium nitride coatings of this thickness almost completely stopped the penetration of tungsten into nickel at 1200°C and molybdenum into nickel at 1100°C durin a 100-hr exposure. The strength of tungsten and molybdenum wire with titanium nitride coatings after annealing in a nickel matrix at 1000-1200°C for 1, 10, 100 hours was considerably higher that of a similar wire without the coating. 1/1

Composite Materials

USSR

UDC 047:69-419.4

TUMANOV, A. T. and PORTNOY, K. I.

"Composite Materials"

Moscow, Metallovedeniye i termicheskaya obrabotka metallov, No 4, 1972, pp 24-27

Abstract: A general description is presented of composites including their classification into fibrous (strengthened by continuous fibers and short filamentary crystals), dispersion-hardenable (produced by the addition of disperse strengthener particles to the metal matrix), and laminated (--by compaction and rolling dissimilar materials). Included are also alloys with oriented crystallization of eutectic structures. The characteristics of each class of the composites are detailed and the immediate objectives relative to advances in composites outlined. The dispersion hardening method is proposed for increasing the heat resistance of nearly all nickel-, cobalt-, iron-, chromium-, titanium-, molybdenum-, and tungsten-base steels and alloys. The high-property potentials of composites have been the focus of attention of designers of modern engines, machines, and equipment inasmuch as the new materials would enable the solution of two major problems: 1) increased rigidity and weight effectiveness of structures

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USSR

TUMANOV, A. T., et al, Metallovedeniye i termicheskaya obrabotka metallov, No 4, 1972, pp 24-27

owing to increment in strength and elastic modulus; 2) greater capacity of engines, machines, and assemblies as a result of higher service temperatures (for Al- and Mg-base composites from 300 to 500°C, for Ti-base materials from 600 to 700-800°C, and for Ni-base materials from 1000 to 1200°C). Application of composites is seen to promote advances in aviation, space, machine building, and many other segments of technology. (6 bibliographic references)

2/2

USSR UDC 546.171.1'621

PORTNOY, K. I., GRIBKOV, V. N., ISAYKIN, A. S., SHCHETANOV, B. V., and LEVINSKAYA, M. KH.

"The Role of Liquid Drops in the Growth of Aluminum Nitride Whiskers"

Moscow, Izvestiya Akademii Nauk SSSR -- Neorganicheskiye Materialy, Vol 6, No 10, Oct 70, pp 1762-1767

Abstract: No theoretical or experimental proof has yet been obtained as to the possibility of the growth of refractory-compound whiskers by the "vapor-liquid-solid phase" mechanism, and there are contradictory views concerning the role of liquid drops in their growth. Therefore, the authors undertook to elucidate the need for the presence of liquid drops for the growth of refractory-compound whiskers, as well as to study the mechanism of their participation in such growth. Aluminum nitride whiskers were used for the study. The whiskers were grown by two methods, viz. (1) reduction of aluminum oxide in the presence of nitrogen and (2) nitriding of aluminum. Experiments showed that the growth of the AlN whiskers according to both reactions is always

USSR

PORTNOY, K. I., et al., Izvestiya Akademii Nauk SSSR -- Neorganicheskiye Materialy, Vol 6, No 10, Oct 70, pp 1762-1767

accompanied by the formation of "drops." Electron diffraction and X-ray studies showed that the composition of the "drops" was identical to that of the whiskers, i. e.,they were spheres of aluminum nitride. Condensation of liquid aluminum drops is a necessary condition for the growth of AlN whiskers. It is unlikely that whiskers of AlN and other similar compounds grow by the "vapor-liquid-solid phase" mechanism. It is more probable that the aluminum drops are crystallization centers.

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Acc. Nr. AP0105531 Abstracting Service: CHEMICAL ABST. 4-70 Ref. Code UR0363

128186u Synthesis of rare-earth tantalates and study of their physicochemical properties. Portnoi, K. I.; Timofeeva, N. I.; Salibekov, S. E. (USSR). Izv. Akad. Nauk SSSR, Neorg. Mater. 1970, 6(2), 289-93 (Russ). By high-temp. firing of mixts. of rare earth oxides and Ta_2O_5, $RTaO_4$, RTa_3O_9, R_3TaO_7 (where R = rare earth element ranging from La to Lu, with the exception of Ce, Pm, and Y) were synthesized. The chem. compn., m.p., d., thermal expansion coeff., heat cond., microhardness, and chem. stability of these compds. were detd. The m.ps. range from 1730 to 2390°, with R_3TaO_7 being the refractory. All the synthesized compds. have a high chem. stability in concd. acids and in boiling H_2O. S. A. Mersol

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Composite Materials

USSR

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PORTNOY, K. I., and GRIBKOV, V. N., All-Union Scientific Research Institute of Aviation Materials

"Growth of AlN Whiskers during Aluminum Nitriding"

Kiev, Poroshkovaya Metallurgiya, No 5, May 70, pp 10-14

Abstract: Investigations were conducted of the process and conditions ensuring a stable growth of aluminum nitride filiform crystals. The crystals were grown in graphite boats in a horizontal tube furnace with a graphite heater. In most cases, the boat was set in the working zone so that there were virtually no temperature gradients in the growth zone. Temperature was measured with an optical pyrometer. Visual observation of the course of the process was conducted with a cathetometer. Metallic aluminum in the form of wire or chips served as the burden material; furnace heater and boats were made of brand AMV graphite. High-purity nitrogen containing no more than 0.005% oxygen and pure argon containing 0.01% nitrogen and no more than 0.003% oxygen served as the working gases.

The experiments indicated that the optimum parameters of the filiform crystal growth process are determined by temperature, gas composition, etc. It was found that with an increase in the degree of supersaturation the thickness of nitride filiform crystals increases, and the rate of linear growth at first increases and

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USSR

PORTNOY, K. I., and GRIBKOV, V. N., Poroshkovaya Metallurgiya, No 5, May 70, pp 10-14

then decreases, passing the maximum. It was shown that the primary growth of whiskers occurs on those portions of the surface near which, in the gas phase, there are high concentration gradients of the precipitable substance. It was established that substance transport in the process of AlN whisker growth during aluminum nitriding is accomplished by aluminum vapors entering the gas phase via diffusion of aluminum through the nitride surface layer. It was also determined that the elastic modulus of AlN whiskers does not depend on crystallographic orientation and comprises 30,000-33,000 kg/mm^2

2/2

Circuit Theory

USSR

UDC: 621.374.5

GOLUBEV, A. G., PORTNOY, M. S., KHANOVICH, I. G.

"Effect Which the Relationship Between Acoustic Resistances of Component Elements in an Electromechanical Delay Line Has on the Amplitude-Frequency Response of the Line"

Tr. uchebn. in-tov svyazi. M-vo svyazi SSSR (Works of Educational Institutes of Communications. Ministry of Communications of the USSR), 1970, vyp. 49, pp 157-162 (from RZh-Radiotekhnika, No 2, Feb 71, Abstract No 2G313)

Translation: The authors investigate the way in which the width of the passband and signal attenuation are affected by the relationship between acoustic resistances in a piezoelectric converter and acoustic line (in the absence of an intermediate layer), and in addition the parameters of the amplitude-frequency response of the delay line are determined as a function of the relationship between the acoustic resistances of the piezoelectric converter and a solder (or cement) layer for the corresponding optimum condition. Bibliography of one title. Resumé.

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USSR

UDC 621.374.5

PORTNOY, M. S.

"Determining the Delay Time of an Electromechanical Delay Line Considering the Acoustic Parameters of Its Component Elements"

Materialy nauchno-tekhn. konferentsii. Leningr. elektrotekhn. in-t svyazi, vyp. 4 (Materials of the Scientific and Technical Conference. Leningrad Electrotechnical Communications Institute, vyp. 4), 1970, pp 122-126 (from RZh-Radiotekhnika, No 9, Sep 70, Abstract No 9G293)

Translation: Expressions are obtained for the group delay time of electromechanical delay lines in the no-load mode with one-way and symmetrical loading of the piezoconverters. Some special cases are investigated. The bibliography has two entries.

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Acc. Nr: AP0044684 Ref. Code: UR 0531

PRIMARY SOURCE: Khirurgiya, 1970, Nr 1 , pp 46-51

PHLEBOGRAPHY IN DISTURBANCES OF THE PATENCY OF SUBCLAVICULAR AND AXILLARY VEINS

Portnoy, M. V.; Vedenskiy, A. N.; Fantgof, P. D.

The article discusses the diagnostic importance of contrast investigation of veins of the upper extremities and shoulder girdle in their acute obstruction. Phlebography was performed during the administration into the subcutaneous cubital vein of a 35 per cent solution of diodon, cardiotrast and other iodine agents in a quantity of 20—30 ml. In 32 patients 48 investigations were performed at different periods (from 1 day to 7 years) after the onset of the disease. Phlebographic changes are described in acute thrombosis, in sequelae of sustained thrombosis and compressed veins.

The authors arrive at the inference that phlebography in combination with other techniques in most cases enables to establish the nature of the process, its localization and extent, as well as the degree of development of collaterals. Phlebography is particularly important when deciding the problem of the operative treatment. In order to avoid incorrect interpretation of phlebograpic data one should take into consideration all the changes on a series of roentgenograms and compare them with the clinical picture of the disease.

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19771415

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USSR

UDC 621.791.756:669.715

RABKIN, D. M., ISHCHENKO, A. Ya., SINCHUK, A. G., Institute of Electric Welding imeni Ye. O. Paton and PORTNOY, N. D., KUKLINA, S. S., and BARANOV, A. V., Ural Railroad Car Plant imeni F. E. Dzerzhinskiy

"Electroslag Welding of Large-Cross-Section Pressed Profiles From AMg6 Alloy"

Kiev, Avtomaticheskaya Svarka, No 12, Dec 70, pp 52-54

Abstract: A description is given of the process of electroslag welding of large-dimensioned rings made of AMg6 aluminum alloy. The process was developed by the two institutions of which the authors named above are members, working in collaboration, and has been put into production. The weldings were from plane electrodes made of the AMg6 alloy (GOST standard 4784-65) and SvAMg7 alloy (GOST 7871-63). This method of welding is said to be the most convenient for short seams on large-dimensioned specimens, offering the advantages of high productivity, reduced difficulties in production, reduced expenditures of electrical energy and auxiliary materials, and improved working conditions for employees. A table gives the compositions of the AMg6 and SvAMg7 alloys.

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USSR

UDC 620.197.6:621.791.763-1

PORTNOY, N. D., and GEYNRIKHSDORF, N. G., Candidates of Technical Sciences, GAFAROV, N. T., NOVIKOVA, Ye. Z. (Ural Railroad Car Plant), TARASOVA, A. A., and KARPECHENKOVA, G. M. (Ural Scientific Research Institute of Ferrous Metallurgy), Engineers

"Characteristics of Certain Protective Coatings Used in Point Resistance Welding"

Moscow, Svarochnoye Proizvodstvo, No 10, Oct 70, pp 43-45

Abstract: A study was made of the effect of impact strength, film elasticity, covering power, and electrical conductivity of corrosion-resistant coatings based on various lacquers on joint quality during welding of type-09G2 steel. Fifteen percent aluminum powder was added to two of the lacquers in order to increase electrical conductivity. With coatings based on lacquers 170 and LSP-1 welding can be done for six days after application. The quality of welded joints covered with composition 119 is decreased if welding is performed more than two days after application of the coating. Oil-base paints are compatible with coatings based on composition 119 and 170 lacquer, but do not dry in the established time when painted over LSP-1 lacquer. Coatings based on 170 lacquer have the

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APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002202520007-1"

USSR

PORTNOY, N. D., et al, Svarochnoye Proizvodstvo, No 10, Oct 70, pp 43-45

greatest impact strength. The impact strength of coatings based on LSP-1 lacquer decreases as the temperature increases to 70°C. Such properties of coatings as elasticity, covering power, hardness, heat resistance, and drying time fall within the established norms set by the standards. When parts are painted with LSP-1 varnish and composition 119, the content of xylene in the working area somewhat exceeds the safety norm. When 170 varnish is used, the content of harmful substances falls within the safety norms. The best technological and mechanical properties are provided by corrosion-resistant, low-toxicity coatings based on 170 varnish.

2/2

USSR UDC 519.24

PORTNOY, N. Ya., TAKHO-GODI, A. Z.

"Simplified Method of Determining Parameters of Correlation and Spectral Functions of a Certain Class of Random Processes"

Tr. Novocherkas Politekhn. In-ta [Works of Novocherkassk Polytechnical Institute], Vol 22, 1970, pp 63-67, (Translated from Referativnyy Zhurnal, Kibernetika, No 10, 1971, Abstract No 10 V394 by V. Alekseyev).

Translation: A number of approaches are described, allowing comparatively simple estimation of the parameters of correlation functions and spectral densities for certain classes of stable random processes. Investigation of the statistical processes of the estimates suggested is not performed. It is noted that the approaches described in the article can be realized using analog computers.

1/1

4

USSR

UDC 617-089.843-06:616-021.2

VISHNEVSKIY, A. A., KOLESNIKOV, I. S., BALLYUZEK, F. V., PORTNOY, V. F., KOSTIN, E. D., PECHERSKIY, V. I., KOLOMIYETS, S. G., and KHUNDANOV, L. L., Institute of Surgery imeni A. V. Vishnevskiy Academy of Medical Sciences USSR, and Hospital Surgery Clinic Military Medical Academy imeni S. M. Kirov

"Causes of Early Functional Incompetence of Allotransplants"

Moscow, Eksperimental'naya Khirurgiya i Anesteziologiya, Vol 1, Jan/Feb 71, pp 3-8

Abstract: Causes and effects in postoperative developments were analyzed, which enabled us to systematize the factors responsible for early functional incompetence of a transplanted organ. Factors in four etiological categories were considered: 1. Organization and Tactics: each of availability of funds for establishing transplantation centers; lack of the required equipment, instruments, and drugs; absence of a central list of potential recipients; and inadequate cooperation between transplantation surgeons and reanimation specialists.

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USSR

VISHNEVSKIY, A. A., et al., Eksperimental'naya Khirurgiya i Anesteziologiya, Vol 1, Jan/Feb 71, pp 3-8

2. Physiological Anatomy: poor estimation of the anatomical and physiological reserves of the transplant; and shortcomings in surgical techniques. 3. Pathophysiology: deteriorated state of the recipient; poor health of the donor; injury to the transplant; excessive functional load on the transplant; and inadequate prevention of operative and postoperative complications. 4. Immunobiology: poor matching of donor and recipient; high immunological potential in the recipient; inadequate prevention of stimulation of immunological reactions in the recipient; and mistakes committed in immunosuppressive therapy.

2/2

USSR UDC: 615.832.9.07:612.563

FORTNOY, V. F., SELIVANENKO, V. T., and AYZENBERG, L. A., Laboratory of Extracorporeal Circulation, Institute of Surgery imeni A. V. Vishnevskiy, Academy of Medical Sciences USSR, Moscow

"Temperature Topography of the Body Following the Use of Two Different Methods of Artificial Hypothermia"

Moscow, Eksperimental'naya Khirurgiya i Anesteziologiya, No 6, Nov/Dec 70, pp 83-88

Abstract: Dogs were chilled by immersion in cold water or by hyperthermic perfusion. In the animals chilled by immersing the lower part of the body in cold water, the lowest temperature was recorded in the regions that came in direct contact with the water (subcutaneous tissue and muscles of the femur). The temperature of the regions not immersed in the water (chest, head) was higher and equal to that of the viscera, the difference between them not exceeding 1.5°C. External chilling thus creates a gradient between the "central" and "peripheral" temperatures and between the immersed and nonimmersed parts of the body. Perfusion of chilled blood resulted in fairly uniform cooling of the viscera, the temperature gradient not exceeding 2°C, but there was a marked difference in the temperature between the viscera and external tissues (4 to 6°C).

1/1

Acc. Nr: AP0052068 P Ref. Code: UR0396

PRIMARY SOURCE: Patologicheskaya Fiziologiya i Eksperimental'naya Terapiya, 1970, Vol 14, Nr 1, pp 12-17

ELECTRIC ACTIVITY OF THE BRAIN IN REVIVAL BY THE METHOD OF ARTIFICIAL CIRCULATION AFTER PROLONGED PERIODS OF ARREST OF THE HEART

V. F. Portnoy, S. I. Plekhotkina, V. A. Chernyak

Chronic experiments were performed on dogs which sustained prolonged clinical death (from 5 to 12 minutes) caused by desanguination. Electric activity of the brain was studied the first 6 to 8 hours from the commencement of revival, and at the remote periods (in 1—3 days, 1, 2, and 9 months). The dogs were revived with the aid of extracorporeal circulation. In the series with general perfusion the first signs of electrical activity appeared 29.1+2.8 minutes from the beginning of perfusion, and its changed to continuous in 16.2±3.5 minutes. In the series with coronaro-carotid perfusion with subsequent donor circulation the electrical activity appeared in 27.3±1.8 minutes. Its formation into continuous was very rapid, taking 2.6—1.9 minutes on the average. In the majority of experiments EEG was immediately continuous. A frequent rhythm of alpha- and beta-range alternating with the waves of theta- and delta-range dominated in 6 to 8 hours from the commencement of the revival. EEG recorded in dogs 2 to 9 months after the revival failed to differ from the initial, and the animals' behaviour was normal.

1/1

REEL/FRAME
19820606

2

-USSR

UDC 616.12-008.315-08:616.12-787-07:616.831-073.97

PORTNOY, V. F., PLEKHOTKINA, S. I., and CHERNYAK, V. A., Laboratory of Artificial Circulation and Experimental Surgery, Institute of Surgery imeni A. V. Vishnevskiy, Academy of Medical Sciences USSR

"Electrical Activity of the Brain After Resuscitation by Extracorporeal Circulation Following Prolonged Cardiac Arrest"

Moscow, Patologicheskaya Fiziologiya i Eksperimental'naya Terapiya, No 1, 1970, pp 12-17

Abstract: The bioelectrical activity of the brain was studied in dogs resuscitated by extracorporeal circulation after 5-12 min of cardiac arrest. In a series of experiments with general perfusion, the first signs of electrical activity appeared after 29.1±2.8 min, in the form of low-amplitude slow waves, that gradually became continuous with increasing amplitude and frequency. Within 4-6 hr from the start of resuscitation, the slow theta and delta waves were dominant on the EEG. In another series of experiments with coronary-carotid perfusion, electrical activity appeared after 27.3±1.8 min, becoming continuous within 1.9-2.6 min. Within 6-8 hours the alpha and beta waves were alternating with the theta and delta waves.

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APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002202520007-1"

USSR

PORTNOY, V. F., et al., Moscow, Patologicheskaya Fiziologiya i Eksperimental'naya Terapiya, No 1, 1970, pp 12-17

According to EEG studies 2-9 months later, bioelectrical activity was the same as before the experiment. The animals' behavior was also normal.

2/2

USSR

UDC 669.28:621.78

ZAKHAROV, A. M., NOVIKOV, I. I., PARSHIKOV, V. G., and PORTNOY, V. K.,
Moscow, Institute of Steel and Alloys

"Age-Hardening of Molybdenum Alloys with Titanium and Zirconium Carbides"

Moscow, Metallovedeniye, No 6, 1971, pp 48-50

Abstract: Age-hardening from 900°C to 1500°C for 0.5-20 hrs in the TVV-2A furnace with a residual gas pressure of 2×10^5 mm Hg of molybdenum alloys of systems Mo-Ti-C, Mo-Zr-C, and Mo-Ti-Zr-C, hardened from 2100°C, was investigated by the method of hardness measuring. The phase composition in late aging stages was analyzed electron-microscopically. In the aging of hardened alloys for 10-20 hrs, the same phases are isolated from the molybdenum solution which must be present in the alloys in accordance with equilibrium state diagrams of Mo-Ti-C, Mo-Zr-C, and Mo-Ti-Zr-C. Aging at 1200-1300°C (0.5-0.55 melting temperature) for 2-4 hrs produced maximum hardness. The ZrC carbide hardens most intensely. The effects of aging temperature and duration on the hardness are shown. The Mo_2C carbide decreases the hardening effect by aging. Two figures, two tables, eight bibliographic references.

1/1

USSR UDC: 621.315.592

ANDREYEV, V. M., BORODULIN, V. I., KONYAYEV, V. P., PAK, G. T., PETROV, A. I., PORTNOY, Ye. L., SHVEYKIN, V. I., Physicotechnical Institute imeni A. F. Ioffe, Academy of Sciences of the USSR, Leningrad

"Spatial Distribution of Heterolaser Emission"

Leningrad, Fizika i Tekhnika Poluprovodnikov, Vol 6, No 9, Sep 72, pp 1739-1748

Abstract: The paper presents the results of experimental and theoretical studies of the luminous field of emission from a heterolaser in the short range and long range zones for various thicknesses of the active region and outside dimensions of the cavity. The distribution of the luminous field on the mirror face of the cavity crosswise of the active region which was observed in the experiments can be satisfactorily described within the framework of a flat triaxial waveguide model. The angular distribution of heterolaser emission in the plane perpendicular to the heterojunction plane can be treated with a fair degree of accuracy as diffraction of a waveguide wave on the open end of a flat metal waveguide filled with a dielectric. The pattern of the long-range field is symmetric relative to the normal to

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ANDREYEV, V. M., et al., Fizika i Tekhnika Poluprovodnikov, Vol 6, No 9, Sep 72, pp 1739-1748

the mirror. The directions to the principal maxima are determined by the angle of refraction of the partial waveguide plane waves. Modes of increasingly higher orders are stimulated in the active region as its width is increased. The pattern of the short-range field (order of the mode) does not depend on either the cavity length or the pumping. In heterolasers with wide active regions, three-dimensional modes of total internal reflection are stimulated which impair the quantum efficiency and increase the divergence of emission. These modes can be suppressed by increasing the ratio L/l, TM modes being suppressed faster.

2/2

USSR

UDC 621.382.3

ALFEROV, ZH. I., ANDREYEV, V.M., KOROL'KOV, V.I., NIKITIN, V.G., PORTNOY, YE.L., YAKOVENKO, A.A. [Physico-Technical Institute imeni A.F. Ioffe, Academy of Sciences, USSR, Leningrad]

"Recombination Radiation In Four-Layer Structures On The Base Of GaAs-AlAs Heterojunctions"

Fizika i tekhnika poluprovodnikov, Vol 6, No 4, Apr 1972, pp 739-741

Abstract: In a previous paper by the authors (see Ye. L. Portnoy) [Fizika i tekhnika poluprovodnikov, 4, 578 (1970)] it is shown that p-n-p-n structures based on the wide-band compounds $A^{III}B^{V}$ with direct optical transitions make it possible to obtain a light source with an S-shaped voltampere characteristic. The radiative and electrical characteristics of such structures can be significantly improved by the use of heterojunctions because, owing to the increase of effectiveness of the emitter junctions and the favorable conditions for derivation of radiation, the possibility is revealed of obtaining low-threshold coherent radiation. The present paper considers p-n-p-n structures based on heterojunctions in the system GaAs--AlAs, in which one of the base regions is narrow-band. The four-layer structures were obtained by epitaxial building-up from the fluid phase. Use of wide-band emitters realizes unilateral injection in the base regions and a 1/2

FEROV, ZH.I., et al, Fizika i tekhnika poluprovodnikov, Vol 6, No 4, Apr 1972, pp 739-741

reduction of the current density necessary for creation of population inversion in the narrow-band base region is achieved, both by a decrease of the recombination losses in the wide-band base and by a decrease in thickness of the most active layer, the narrow-band base. Typical radiation spectra are presented of a four-layer heterostructure with a narrow-band base of p-type conductivity at 77 and 300° K. The authors thank S.G. Konnikov for conducting microroentgenspectroscopic analysis and V. M. Tuchkevich for interest and attention to the workd. 3 fig. 3 ref. Received by editors, 20 July 1971.

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USSR UDC 621.382.3

ALFEROV, ZH. I., ANDREYEV, V. M., GARBUZOV, D. Z., MOROZOV, YE. P., PORTNOY, YE. L., TROFIM, V. G., KHALFIN, V. B.

"Current Flow Mechanisms in the Presence of Electroluminescence of p-GaAs-n-$Al_xGa_{1-x}As$ Heterojunctions"

Leningrad, Fizika i Tekhnika Poluprovodnikov, Vol 6, No 2, 1972, pp 366-375

Abstract: A study was made of the electroluminescent properties of p-GaAs-n-$Al_xGa_{1-x}As$ heterojunctions with a different level of alloying of the p and n-regions. The electroluminescence spectra and the dependencies of the radiation intensity on the voltage applied to the heterojunction were investigated in the temperature range of 77-400° K. In heterojunctions with an acceptor concentration in the p-region of $\approx 10^{19}$ cm^{-3} and a donor concentration in the n-region $>3 \cdot 10^{17}$ cm^{-3} in the temperature range of 77-200° K, the radiation in the gallium arsenide band is caused by tunneling of the electrons in the p-GaAs through the barrier in the conduction band. The experimental results obtained are compared with the theoretical calculation made within the framework of the model usually used when investigating tunneling in Schottky barriers.

In heterojunctions with weakly alloyed n-region ($N_D \leq 3 \cdot 10^{17}$ cm^{-3})

USSR

ALFEROV, ZH. I., et al., Fizika i Tekhnika Poluprovodnikov, Vol 6, No 2, 1972, pp 366-375

there is two-way injection of the carriers. The electron and hole current components responsible for emission in the gallium arsenide and red bands of the electroluminescent spectrum are caused by thermal injection of the carriers. With an increase in the alloying level of the n-region ($3 \cdot 10^{17} < N_D < 10^{18}$ cm^{-3}), the electron component of the current increases quickly and the relative radiation intensity in the gallium arsenide band builds up correspondingly. At reduced temperatures the electron component of the current in such heterojunctions is caused by tunneling of the carriers through the barrier in the conduction band. The thermal injection mechanism of the current responsible for recombination in the gallium arsenide band is retained after 300° K in heterojunctions with $N_D \leq 7 \cdot 10^{17}$ cm^{-3}. In heterojunctions with strongly alloyed n-region ($N_D \geq 2 \cdot 10^{18}$ cm^{-3}), the transparency of the barrier in the conduction band is so great that its presence has no noticeable effect on the dependence of the electron component of the current on voltage. At low voltages $eV_n < E_g$ (GaAs) the radiation in these heterojunctions is caused by diagonal tunnel junctions of the n-$Al_xGa_{1-x}As$ conduction band and the p-GaAs valence band.

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UDC 621.315.592

USSR

ALFEROV, ZH. I., ANDREYEV, V. M., BELOUSOVA, T. YA., BORODULIN, V. I., GORBYLEV, V. A., PAK, G. T., PETROV, A. I., PORTNOY, YE. L., CHERNOUSOV, N. P., SHVEYKIN, V. I., YASHCHUMOV, I. V.

"Effective Injection Heterolasers Operating in the Wavelength Band of 7,400-9,000 Å"

Leningrad, Fizika i Tekhnika Poluprovodnikov, Vol 6, No 3, 1972, pp 568-569

Abstract: Results are presented from a study of the characteristics of effective heterolasers radiating in the wavelength band of 7,400-9,000 Å at room temperature. The n-$Al_xGa_{1-x}As$-p-$Al_yGa_{1-y}As$-p^+-$Al_xGa_{1-x}As$ heterojunctions were obtained by epitaxial growth from GaAs-AlAs solutions. All the investigated diodes had a Fabry-Perot resonator. The threshold current density, the external differential quantum efficiency and the radiation power per pulse at 300°K are tabulated for various models of the lasers. Graphs are presented showing the mean values of the threshold current density and the external differential quantum efficiency as functions of the emission quantum energy and the temperature dependence of the external differential quantum efficiency. The threshold current density increases exponentially with an increase in temperature according to the known law [V. I. Leskovich, et al., FTP, No 1, 1440, 1967]. Up to

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ALFEROV, ZH. I., et al., Fizika i Tekhnika Poluprovodnikov, Vol 6, No 3, 1972, pp 568-569

a temperature of 250° K, the external differential quantum efficiency does not vary, in practice, but then it decreases with temperature. The data demonstrate the possibility of obtaining generation in the continuous mode at 300°K up to 7,700 Å.

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USSR

UDC 621.375.82

ZHITKOVA, M. B., KLUSHIN, V. N., PORTNYAGIN, A. I., SHOKIN, A. A.

"Continuous Laser With a Vortex Lamp"

V sb. Kvant. elektronika (Quantum Electronics -- Collection of Works), No 3, Moscow, "Sov. radio," 1972, pp 24-29 (from RZh-Fizika, No 1, Jan 73, Abstract No 1D895)

Translation: The effect of the heat condition on the parameters of the active element of a YAG-Nd crystal under continuous pumping is analyzed. It is shown that in theoretical calculations it is necessary to take into account the variation, with temperature, of the crystal characteristics at high pumping levels. The laser pumping efficiency using krypton arc tubes is compared with that using a vortex discharge. The dependence of the spread of the output radiation and the focal distance of the thermal lens on the pumping power was investigated experimentally. The nature of the distribution of double refraction induced by optical pumping for the case of coincidence of the crystallographic plane [100] with the axis of the cylindrical active element is investigated. 10 ref. Authors' abstract.

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PORTUGALOV, V. V.

JPRS 55341
6 May 72

UDC: 611.73.014.477-064-019

STRUCTURAL AND CYTOCHEMICAL CHANGES IN THE RAT'S SKELETAL MUSCLES ASSOCIATED WITH RESTRICTED MOBILITY

[Article by V.V. Portugalov, Ye.I. Il'ina-Kakuyeva, V.I. Starostin, K.D. Rokhlenko, Z.F. Savik; Institute of Developmental Biology, USSR Academy of Sciences, Moscow; Leningrad, Arkhiv Anatomii, Gistologii i Embriologii, Russian, No 11, 1971, submitted 19 January 1971, pp 82-91]

The problem of hypokinesia and hypodynamia now goes far beyond the framework of special issues in cosmonautics and clinical practice. In the last decade it has gained broad social significance. Indeed, with the development of technology and mechanization of industry the working and living conditions for large groups of people in developed nations are changing appreciably. There are fewer and fewer applications for the muscular component in man's endeavors.

Diminished muscular activity leads to a large number of changes in systems that do not appear to be related to locomotor functions. There is a change in synthesis of catecholamines, aldosterone, electrolyte balance is impaired, etc. Restricted muscular activity of man related to prolonged immobilization or strict bed rest is always associated with development of atrophy of skeletal muscles and demineralization of bone tissue. Clinicians are well aware of the fact that strict bed rest leads to changes in cardiac function, development of orthostatic hypotension, it is instrumental in development of venous thrombosis, chronic pneumonia, pulmonary embolism, urolithiasis, and many other pathological conditions. We also know that in the case of hypokinesia and hypodynamia there is prevalence of inhibitory processes over excitatory ones in the central nervous system, etc.

Thus, even a mere listing of the effects of limited motor activity shows that it is important to maintain man's motor activity at a specific level in order to keep many of the body's functions within normal range.

The objective of the present investigation was to determine the nature of structural and cytochemical changes in some skeletal muscles of the hindlegs as related to different durations of hypokinesia and hypodynamia.

USSR

UDC 612.273:[612.017.1+612.014.1

DURNOVA, G. N., KAPLANSKIY, A. S., and PORTUGALOV, V. V., Moscow

"Cytochemical and Immunological Investigation of the Reactivity of Mice Kept in an Atmosphere With a High Oxygen Content"

Moscow, Arkhiv Patalogii, Vol 32, No 10, 1970, pp 49-53

Abstract: Exposure of male mice for 10 days to an atmosphere containing 69% oxygen resulted in inhibition of both phagocytosis by neutrophils and phosphorylase activity in neutrophils. Exposure also increased their glycogen content. The high oxygen level had no effect on phagocytosis by macrophages, antibody production, or resistance to infection with a live S. typhi culture after immunization with Vi-antigen. The toxic effects of the oxygen were manifested by insignificant lesions in the lungs, liver, thymus, and lymph nodes. There were no visible changes in the heart, kidneys, adrenals, or testes.

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1/2 027 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--CHANGES IN THE MUSCLE FIBERS OF THE SOLEUS MUSCLE DURING HYPOKINESIS -U-

AUTHOR-(03)-STAROSTIN, V.I., PORTUGALOV, V.V., ILINAKAKUYEVA, YE.I.

COUNTRY OF INFO--USSR

SOURCE--DOKL. AKAD. NAUK SSSR 1970, 190(5), 1215-17

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--HYPODYNAMIA, MUSCLE PHYSIOLOGY, HISTOCHEMISTRY, ADENOSINE TRIPHOSPHATE, ENZYME ACTIVITY, GLYCOGEN

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1998/0706 STEP NO--UR/0020/70/190/005/1215/1217

CIRC ACCESSION NO--AT0121365

UNCLASSIFIED

2/2 027 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AT0121365

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN EXPTS. WITH MATURE MALE RATS SUBJECTED HYPOKINESIS BY CAGING IN 3 DIRECTIONS IT WAS SHOWN THAT THE SOLEUS MUSCLE CHANGES IN THE COURSE OF 15-60 DAYS SO THAT FIBERS FORM IN IT THAT ARE SIMILAR TO THE TARGET FIBERS DESCRIBED BY RESNIC AND ENGEL (1967). THESE CHANGES ARE NOT TYPICAL OF THE FAST MUSCLES SUCH AS IN THE LEG CALF. EVIDENTLY THE PECULIARITY OF STRUCTURE OF THE SOLEUS MUSCLE IS LARGELY RESPONSIBLE FOR THIS RESULT. THE FIBERS LOSE THEIR POLYHEDRAL FORM AND INCREASE IN VOL. AND ON THE HISTOCHEM. DETECTION OF OXIDIZING ENZYMES IN THESE FIBERS A VOLUMINOUS PPT. OF DIFORMAZAN IS OBSERVED. IN THESE FIBER REGIONS THE ACTIVITY OF ATPASE IS BELOW NORMAL AND GLYCOGEN DISAPPEARS FROM SUCH FIBERS. THE PPT. OF DIFORMAZAN IS ASCRIBED TO ACCUMULATION OF MITOCHONDRIAL MATTER IN THESE FIBERS ALONG WITH SUDANOPHILIC MATERIALS. FACILITY: INST. MED.-BIOL. PROBL., MOSCOW, USSR.

UNCLASSIFIED

USSR Physiology UDC 591.862 + 576.343

STAROSTIN, V. I., PORTUGALOV, V. V., and IL'INA-KAKUYEVA, E. I., Institute of Medical-Biological Problems, Moscow (Reported by the Academician V. D. Timakov)

"Changes in Muscle Fibers of the Soleus Muscle During Hypokinesia"

Moscow, Doklady AN SSSR, Vol 190, No 5, 1970, pp 1,215-1,217

Abstract: Immature male rats were placed in special cages designed to limit their mobility for 15, 30, and 60 days. After 15 days, the cross sections showed considerable enlargement of muscle fibers, which had lost their polygonal form. Diformazan precipitated during determination of oxidative enzymes in the central zone of many fibers, the myofibrillar apparatus became "diffuse," and glycogen disappeared from the fibers. At later stages the muscle fibers diminished. Around the 30-day period glycogen in the fibers increased, concentrating in the central zone. Concurrently the activity of glycogensynthetase increased and that of phosphorylase A and B decreased. The area of formazan precipitation diminished and even disappeared. Towards 60 days, some reversal of the above processes took place. Some muscle fibers were destroyed -- they showed no enzyme activity and no glycogen. The atrophy and the sclerotic processes in the muscles continued to progress. The authors conclude that restriction of movement leads to the formation of a type of "target-fibers" in Soleus muscle, similar to those occurring during myopathy of diverse etiology.
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APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002202520007-1"

Acc. Nr: AP0038118 P Ref. Code: UR 0326

PRIMARY SOURCE: Fiziologiya Rasteniy, 1970, Vol 17, Nr 1, pp 169-173

DISTRIBUTION OF CHLORINE AND IODINE IN PLANTS

Portyanko, V. F.; Kostina, A. Ye.; Dulova, M. K.; Portyanko, V. V.

P. D. Osipenko Pedagogical Institute, Berdyansk

The distribution of chlorine and iodine among organs of elaeagnus, grape, quince, poppy, sunflower and other plants was studied. Chlorine is found to be located primarily in the cortex, mature and old leaves and peduncle. Lowest amounts of chlorine are observed in young leaves, seeds and wood and other organs. On the contrary iodine is mainly concentrated in young organs such as the stamens, pistils, young leaves and seeds. In many organs an antagonism can be observed between the disirbution of iodine and chlorine. Chlorine is distributed in leaves of various tiers in the basipetal direction whereas iodine is distributed in the acropetal direction.

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REEL/FRAME
19731171

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Acc. Nr: AP0038118 Ref. Code: UR 0326

PRIMARY SOURCE: Fiziologiya Rasteniy, 1970, Vol 17, Nr 1, pp 169-173

DISTRIBUTION OF CHLORINE AND IODINE IN PLANTS

Portyanko, V. F.; Kostina, A. Ye.; Dulova, M. K.; Portyanko, V. V.

P. D. Osipenko Pedagogical Institute, Berdyansk

The distribution of chlorine and iodine among organs of elaeagnus, grape, quince, poppy, sunflower and other plants was studied. Chlorine is found to be located primarily in the cortex, mature and old leaves and peduncle. Lowest amounts of chlorine are observed in young leaves, seeds and wood and other organs. On the contrary iodine is mainly concentrated in young organs such as the stamens, pistils, young leaves and seeds. In many organs an antagonism can be observed between the distribution of iodine and chlorine. Chlorine is distributed in leaves of various tiers in the basipetal direction whereas iodine is distributed in the acropetal direction.

REEL/FRAME
19731171

UDC 002.513.5:676.815.2:547

USSR

PORTYANSKIY, A. YE., LOKSINA, N. T., TASHPULATOV, YU. T., MAMEDOVA, V. M., and MEKHTIYEV, S. I.

"The Use of Punched Cards for the Solution of Specific Problems in IR Spectroscopy"

Moscow, Nauchno-Tekhnicheskaya Informatsiya, Seriya 1 -- Organizatsiya i Metodika Informatsionnoy Raboty, No 2, 1970, pp 28-30

Abstract: The article describes a direct code developed by the authors for cataloging data and solving specific spectrochemical problems which occur in the practical analysis of aliphatic nitriles ($C \leq 10$). A standard K5 two-row edge-notched card is used. To facilitate the coding, a stencil (tracing paper) with code scheme and elements (some of them borrowed from the DMS system) is pasted onto each punched card. The horizontal rows of perforations are designed for recording (all) absorption frequencies; and the vertical rows, for structure coding. The code scheme is supposed to reflect the relative arrangement of groups

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USSR

PORTYANSKIY, A. YE., et al., Nauchno-tekhnicheskaya Informatsiya, Seriya 1 -- Organizatsiya i Metodika Informatsionnoy Raboty, No 2, 1970, pp 28-30

with respect to the CN group. The code is suitable for the cataloging of IR spectra, detailed coding of the structures of various compounds, as well as for finding "structure-spectrum" correlations.

2/2

1/2 028 UNCLASSIFIED PROCESSING DATE--11SEP70

TITLE--OXIDATION OF AMMONIA ON A BISMUTH MOLYBDENUM CATALYST -U-

AUTHOR--ALKHAZOV, T.G., ADZHAMOV, K.YU., LISOVSKIY, A.YE., BELENKIY, M.S., PORTYANKSIY, A.YE.

COUNTRY OF INFO--USSR

SOURCE--KINET. KATAL. 1970, 11(1) 123-9

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CATALYTIC OXIDATION, AMMONIA, NITROGEN, ACTIVATION ENERGY, BISMUTH, MOLYBDENUM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1989/0195 STEP NO--UR/0195/70/011/001/0123/0129

CIRC ACCESSION NO--AP0106851

UNCLASSIFIED

2/2 028 UNCLASSIFIED PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0106851

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE IR SPECTRA SHOW THAT N SUB2 O, NO, N SUB2, AND H SUB2 O ARE THE MAIN PRODUCTS OF THE CATALYTIC OXIDN. OF NH SUB3 ON A 1:2 BI,MO CATALYST. 70PERCENT OF THE NH SUB3 IS CONVERTED TO N AND THE REMAINING PART IS OXIDIZED TO THE MENTIONED PRODUCTS. THE ACTIVATION ENERGY OF NH SUB3 OXIDN. IS 11 KCAL-MOLE AND THE OXIDN. IS A 1.5 ORDER REACTION WITH RESPECT TO NH SUB3 CONCN.

UNCLASSIFIED

USSR UDC 161-006-02

KRASKOVSKIY, G. V., PORUBOVA, G. M., and KAGAN, L. F.

"Influence of the Immunodepressive Effect of Urethan on Carcinogenesis in Pulmonary Isotransplants in Mice"

Minsk, Izvestiya Akademii Nauk BSSR, Seriya Biologicheskikh Nauk, No 1, 1971, pp 112-113

Abstract: Urethan in a dose of one milligram per gram of body weight (mg/g) was intraperitoneally administered to strain AF male mice 2-3 months old twice with an interval of 48 hours between injections. Seventy-two hours later, the animals were intraperitoneally immunized with doses of 100.10^6 of ram erythrocytes. The control mice were given only ram erythrocytes. Pulmonary tissue sections of intact mice and mice given urethan were used as transplants. Five months after the administration of urethan, the transplants were extracted from the animals, fixed in a 10% solution of formalin, stained with hematoxylin eosin, and examined. It was found that urethan has a pronounced immunodepressive effect, manifested by a 31% decrease in the

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KRASKOVSKIY, G. V. et al., Izvestiya Akademii Nauk BSSR, Seriya Biologicheskikh Nauk, No 1, 1971, pp 112-113

number of hemolysin-producing cells in the spleen. It was established also that urethan administered to mouse recipients 72 hr before isotransplantation increases by 92.9% the frequency with which adenomas develop in the pulmonary transplants of the donors given the carcinogen, and by six times the frequency of development of adenomas in the pulmonary transplants of intact donors.

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USSR

UDC: 533.6.013.42

PORUCHIKOV, V. B.

"Diffraction of Acoustical Waves on a Fine Elastic Band Embedded in an Infinite Solid Wall"

V sb. Nauchn. konferentsiya. In-t mekhan. MGU. Tezisy dokl. (Scientific Conference; Mechanics Institute of the Moscow State University; Thesis Reports--collection of works) Moscow, 1970, pp 53-54 (from RZh-Mekhanika, No. 8, Aug 70, Abstract No. 8V339)

Translation: The action is considered of a plane nonstationary pressure wave on a fine elastic infinitely long band in a boundless absolutely firm screen and immersed in an ideal compressible fluid (the fluid occupies only the lower half-space). The motion of the band is described by an equation of the Timoshenko type with the transverse shift and inertial rotation taken into account, while the movement of the fluid is a scalar wave equation of acoustical velocity potential. The diffraction problem for an elastic half-plane is first solved through the integral Laplace transform

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USSR

PORUCHIKOV, V. B., V sb. Nauchn. konferentsiya, In-t mekhan. MGU. Tezisy dokl., 1970, pp 53-54 (from RZh-Mekhanika, No 8, Aug 70, Abstract No 8V339)

with respect to time and with respect to the coordinate by the Wiener-Hopf method. The solution for the band is obtained by the imposition of the solutions of the auxiliary problem. Three fronts of weak breaks in the band are determined. No numerical computations are given. A. G. Gorshkov

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USSR UDC: 517.9:533.7

SAGOMONYAN, A. Ya., PORUCHNIKOV, V. B.

"Three-Dimensional Problems of Unsteady Motion of a Compressible Fluid"

Prostranstvennyye zadachi neustanovivshegosya dvizheniya szhimayemoy zhidkosti (cf. English above), Moscow, Moscow University, 1970, 120 pp, ill. 22 k. (from RZh-Matematika, No 5, May 71, Abstract No 5B478 K)

Translation: The book contains analytical solutions of an extensive class of problems of unsteady motion of gas and compressible liquid. These problems fall chiefly into three groups: reflection of acoustic and shock waves from solid boundaries; impact penetration of solids into a compressible fluid; and penetration of a liquid, compressible half-space by pressure propagating over its surface. The solids treated in the problems have a geometric singularity of the vertex and rib type. The solutions for most of the problems are found in closed form. Authors' resumé.

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UDC 665.59.620.191/.193

USSR

PORUTSKIY, G. V., MAKAROV, I. A., STROMENKO, A. Ye., and ROZDAYBEDIN, A. S., All Union Scientific Research Institute of Petrochemistry, Main Petroleum Chemistry Industry, UkrSSR

"Preparation of Sea Water and Corrosion of the Equipment of Petroleum Plants"

Kiev, Neftyanaya i Gazovaya Promyshlennost', No 4, 1973, pp 39-41

Abstract: Depending on the conditions of circulation flow rate and temperature of water, chemical and biological changes occur in sea water resulting in sedimentation, corrosion and bioformations. Several factors important in considering sea water for cooling and recirculation have been discussed: index of stability based on the content of CO_2, effect of temperature, content of petrochemicals; all of these factors increase the corrosiveness and lead to higher biological activity in sea water.

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UNCLASSIFIED PROCESSING DATE--20NOV70

1/2 007

TITLE--TYPIFICATION OF HYDROGRAPHS OF LIQUID AND SEDIMENT RUNOFF FOR ESTIMATION OF DEBIT STABILITY OF INFILTRATIONS WATER INTAKES -U-

AUTHOR-(04)-SERGUTIN, V.YE., PORYADIN, A.F., TURUTIN, B.F., CHERKASOV, A.YE.

COUNTRY OF INFO--USSR

SOURCE--METEOROLOGIYA I GIDROLOGIYA, 1970, NR 5, PP 76-81

DATE PUBLISHED--------70

SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY

TOPIC TAGS--RUNOFF, RIVER WATER, SEDIMENT

CONTROL MARKING--NO RESTRICTIONS

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CIRC ACCESSION NO--AP0132380
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UNCLASSIFIED PROCESSING DATE--20NOV70

2/2 007

CIRC ACCESSICN NO--AP0132380

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TYPIFICATION OF WATER REGIME OF RIVERS IS PERFORMED ACCORDING TO THE PRINCIPLE OF MOTION SYNCHRONISM OF LIQUID (Q) AND SEDIMENT (G) RUNOFF (DISCHARGES), I.E. ACCORDING TO COINCIDENCE OF PEAKS OF WATER AND TURBIDITY DUE TO SUSPENDED LOAD DURING THE SPRING AND SUMMER FLOODS. TYPIFICATION OF COMBINED HYDROGRAPHS Q AND G DISCHARGES IS PERFORMED ON THE BASIS OF WELL KNOWN REGULARITIES OF INTRA ANNUAL DISTRIBUTION OF THE RIVER RUNOFF. CERTAIN EXAMPLES ON THE CONTROL OF INFILTRAITON WATER INTAKES OPERATION ARE GIVEN.

FACILITY: KRASNOYARSKIY INSTITUT TSVETNYKH METALLOV.

UNCLASSIFIED

UNCLASSIFIED PROCESSING DATE--17JUL70

TITLE--A COMPARATIVE STUDY OF HUMAN ALLERGIC ANTIBODIES IN THE PRAUSNITZ KUESTNER REACTION AND IN PASSIVE SENSITIZATION OF ISOLATED SMOOTH MUSCLE

AUTHOR--BERMONT, I., GOSHCHIN, I.S., POLNER, A.A., PORYADIN, G.V.

COUNTRY OF INFO--USSR

SOURCE--PATOLOGICHESKAYA FIZIOLOGIYA I EKSPERIMENTAL'NAYA TERAPIYA, 1970, VOL 14, NR 1, PP 49-53

DATE PUBLISHED--------70

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SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--ALLERGIC DISEASE, ANTIBODY, MEDICAL PATIENT, SMALL INTESTINE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1982/0602 STEP NO--UR/0396/70/014/001/0049/0053

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Acc. Nr: AP0052064 Ref. Code: UR0396

PRIMARY SOURCE: Patologicheskaya Fiziologiya i Eksperimental'naya Terapiya, 1970, Vol 14, Nr 1, pp 49-53

A COMPARATIVE STUDY OF HUMAN ALLERGIC ANTIBODIES IN THE PRAUSNITZ-KUESTNER REACTION AND IN PASSIVE SENSITIZATION OF ISOLATED SMOOTH MUSCLE ORGANS IN MAN

I. . Bermont, I. S. Goshchin, A. A. Polner, G. V. Poryadin

A comparative study of allergic antibodies of untreated patients sensitive to ambrosia was carried out by means of Prausnitz-Kustner reaction and by passive sensitization of isolated sections of the ileum. In the fractions of reaginic sera obtained by gel-filtration on Sephadex G-200 the skin-sensitizing activity and sensitizing activity to the small intestine were revealed in the same zone — the ascending part of the second peak which contained γG-globulin and traces of γA-globulin. Exhaustion of both γA- and γG-globulin in reaginic sera reduced their skin-sensitizing activity and sensitizing activity to the small intestine. Heating of intestinal sections at 45° C for 15 minutes eliminated the possibility of subsequent sensitization of the intestine. Preliminary heating of isolated human skin at 60° C for 30 minutes depressed the fixation of skin-sensitizing antibodies on it.

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